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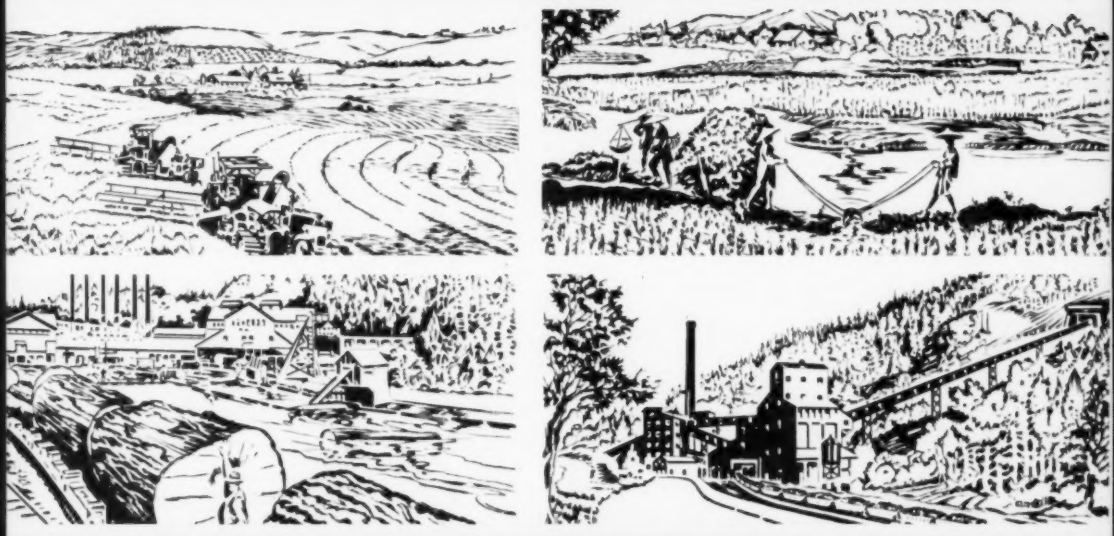

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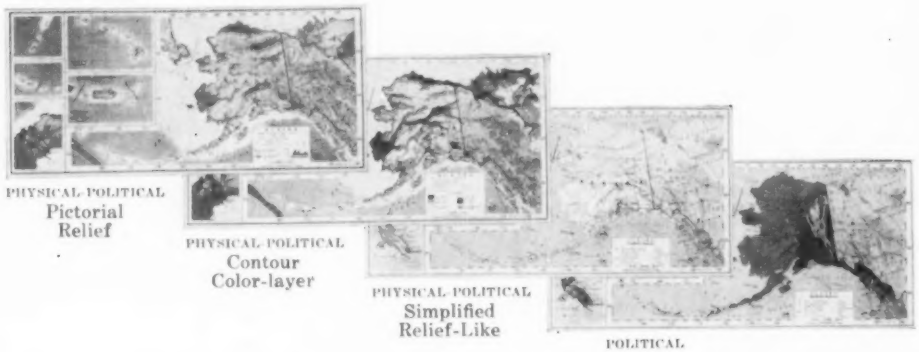

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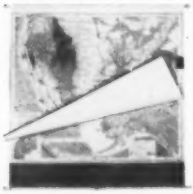

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GEOGRAPHY ACROSS THE CURRICULUM

N. V. SCARFE
The University of British Columbia

The purpose and plan of this article is to try to show how modern geography, well-taught, fits particularly well into the major theme of a complete education in the mid-twentieth century. If this thesis can be proven it will mean that geography should be taught in each grade in the elementary and secondary schools of the nation, as a continuously developing series of increasingly difficult concepts.

In order to carry out the theme of this article, it will be necessary to expound in some detail the special function and purpose of geography in school, and to show how that special function and purpose fits particularly well into the objectives of total school education. It will also be necessary to discuss modern education.

The function of modern education in school is to train future citizens to think diligently and critically for themselves and by themselves so that they can act wisely and virtuously in social, political, economic and private affairs.

It will be noted that this definition of education puts the emphasis on the thinking process rather than on the acquisition of uncomprehended information. The statement, of course, assumes that facts, information, data and experiences are the raw material on which these future citizens must exercise their minds. It is clear, however, that the educative process is thinking, not the accumulation of knowledge. It seems, too, that another obvious assumption is implied: as a result of diligent, careful and critical thinking a great many facts will be remembered because they have been understood and associated one with the other into ideas, impressions and attitudes.

The conclusion is that educated citizens are essentially thoughtful citizens who will be able to apply wisely the knowledge and understanding acquired thru the exercise of the grey matter. Since the purpose of education is to help the future citizens to face the

future problems of living, it seems that the problem of living is emphasized rather than the problem of earning a living, altho the use of the word "economic" suggests earning a living as one important future activity. Nevertheless, it would be right to conclude that the function and purpose of school is primarily to help future citizens live more abundantly, that is, to get more out of life and put more into life, both intellectually and morally.

The emphasis on thinking also implies a method of teaching, and indicates that the child or the student must do the thinking for himself and by himself, and must arrive at his own conclusions, generalizations, principles and ideas. The old idea of the mind being an empty vessel that must be filled by cramming information in is long since obsolete. Education is an active investigation, an experimental inquiry and an enthusiastic thinking thru of evidence toward a solution of problems. Educational method is, therefore, conceived as an active, creative, constructive research type of exercise which relies heavily on the application of acquired ideas and methods to the solution of future problems.

There is another important comment to make about the statement as it stands. It suggests a double aim. It seeks for the intellectual and moral excellence of the individual and it also implies, by the use of the word "citizen", social growth and development.

The following attributes seem obvious derivatives from the main statement. Future citizens should use their leisure time in constructive and creative ways. They should learn to get along with others cooperatively and happily. They must learn to vote wisely, read newspapers intelligently, and be careful to discriminate when choosing to listen to or view radio, television and movie programs. They should acquire the habit of considering thoughtfully social and political problems. They should maintain wide interests in many aspects of living, both at home and abroad. Finally, they should behave in a responsible manner, both publicly and privately.

These attributes of a good individual and a good citizen are stressed because it will be obvious that education in school is not primarily producing historians, or geographers, or mathematicians, or English Language experts, nor is it seeking to cram the mind with facts. Instead, education is concerned with the growth of ideas, attitudes and personality as a result of the study of facts, information and experiences. All these attributes, of course, are just those specially fostered by geographical study.

NATURE OF GEOGRAPHY

A study of the world which does not attempt to associate facts of the environment with facts of human activity and thereby come up with good ideas on how the world's resources may be better used and human understanding the world over more appropriately fostered, cannot be called geography. Geography is designed to develop goodwill and international understanding. It is not designed to crowd the mind with a compendium of information about capes and bays, or capitals and products, or cities and factories of the world. No geography worthy of the name can get on without the essential details and facts of the world, but it can never become *geographical education* until a child thinks thru these facts for himself by active experimental methods and arrives at ideas and impressions which will modify his future outlook and behavior for the good. The essential geographic educational process, therefore, is the thinking process, or the improvement of the intellectual power of the mind to make finer judgments, wiser discriminations and more humane decisions.

RELATION OF GEOGRAPHY TO OTHER SUBJECTS

In order to see the relationship of geography to the rest of the subjects of a school curriculum, it is necessary to study the diagram in Figure 1, in which the totality of study in a school is represented by a circle. The intent is to show that all knowledge is a whole and that all aspects of knowledge are closely linked one with the other in various ways. The various segments into which this circle is divided are not to suggest that any subject is a slice of total knowledge, but to suggest that any subject is a way of looking at total knowledge.

No subject in the curriculum can be defined as a body of facts or content. Subjects in the curriculum are points of view or themes, or ways of relating neutral facts. The purpose of dividing up total knowledge into various subjects is in order that the various points of view may be more clearly seen and their relative emphasis assessed. Total knowledge, nevertheless, is a mass of neutral facts or information, but in order to be understood they must be looked at expertly from particular points of view.

There are, of course, two main sets of facts that all school children must study. There are facts about man and there are facts about the world in which men live. The world in which men live is

usually called the world of nature, and the study of the world of nature is called Natural Science. The purpose of Natural Science is to relate the various facts of nature together. Put in another way, it is the study of the effect of one set of natural conditions on another set of natural phenomena. As an example, we study how plants are related to the soil in which they grow.

We call the study of man Social Science rather than Natural Science, and the purpose is to study the effect of men on men, or

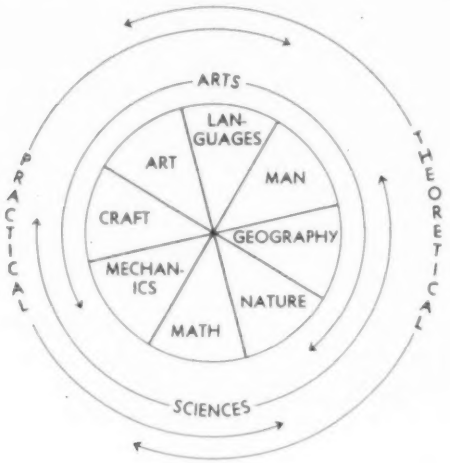

Fig. 1

one type of human action or thought on another type of human action. The adoption of a Communist ideology by the Russians has certainly had grave effects on the human actions of many people in the rest of the world.

There is, of course, a third kind of association of facts. This is the study of the effect of natural phenomena on men's actions. The study of this type of relationship is essentially the study of geography. It is quite distinct from Natural Science, which should concern itself solely with the effects of the various phenomena of nature one on the other, and also from Social Science, which is concerned solely with the influence of one set of human action or thought on another type of human action and thought. Geography, therefore, is above all the great integrating core of the content side of any school curriculum.

The remainder of the diagram may be very briefly discussed here in order that the full curriculum of the school may be understood. It will be seen that Natural Scientists use the convenient language of mathematics to apply their findings to the service of humanity. Theories derived from a study of nature are put to practical use in applied science and engineering. Similarly, the language of speech and writing is used to apply our knowledge of man and his aspirations to the field of the drama and poetry. Furthermore, the human spirit is also expressed in music and fine arts. When we come to such a topic as architecture we see the clever combination of engineering skill and scientific endeavor with artistic expression. All crafts, and they include teaching, are the clever combination of scientific discovery and human artistry.

On the left side, then, of this diagram, we see the great subjects which are the evidences of the expression of human genius, after study of man and nature. Just as craft unites the scientific and the artistic on the practical side, so geography unites the study of man and the study of nature on the content side. Just as mathematics links pure science and applied science, so language links social science with art.

Every subject in the curriculum is for school purposes a vehicle or medium thru which children are educated. Each subject is a separate and different way of stimulating the thought processes. Each subject is a means by which ideas are achieved, attitudes formed, and character improved. A well-rounded character, a balanced thinking mind, is one which has attempted to attack total knowledge from the various distinct points of view that school subjects provide. The essential unifying, educational process is the thought process which may be defined as a diligent, active, experimental search for the relationships between different sets of facts. The purpose of this process is two-fold. The first is to stimulate the growth, power and virility of the mind. The second is to achieve thereby wisdom and virtue, or the ability to use in a sensible fashion acquired knowledge, skill and, in particular, understandings in making competent decisions and in taking socially excellent action.

THE ROLE OF GEOGRAPHY

Since geography is concerned with the thoughtful discussion and investigation of the relationship between men and their environment all over the world at the present time, it obviously fits

right into the middle of modern education. It lends itself to active, scientific enquiry of immediate and pressing world issues. Its emphasis on field work, the study of pictures and specimens, of maps and other exact data from the world makes its content of real value simply for its own sake. Its importance, however, is not in geography for its own sake but in the light that the study of the space factor throws on the political and social problems of the world and the way in which it leads to national and international understanding and goodwill.

In addition, geography is a particularly fine medium for the stimulation of the thought processes and for improving the quality of the mind to apply knowledge in wise action. No day passes when a knowledge of geography would not help in understanding the daily newspaper. Millions now travel great distances across the world, either in fact or thru newspapers, books, television and radio programs. Again, travel can be interesting or uninteresting according to one's knowledge of geography.

So far as school is concerned, geography is mainly a citizenship subject and one which enriches leisure time; but it would be a mistake to suppose that geography has no vocational values because large numbers of geographers are employed in Town and Country Planning schemes, shipping agencies, international insurance agencies, in all the foreign diplomatic services and in many other ways.

There are one or two negative points to emphasize. Geography does not teach conformity or uniformity. It tends towards the development of individual excellence and encourages people to think for themselves and to reserve judgement until relevant data is available. While it tends to lead to international understanding and goodwill, this is in no sense a sloppy sentimentalism or soft-hearted piety. The understanding is based on the knowledge that people the world over must face many problems which are not of their own making, but are presented to them by the forces of nature. In general, geography is able to show that human beings in dealing with natural conditions tend to adjust their lives in a sensible and often ingenious manner. This does not mean that men succumb to the problems that nature presents, but rather adjust in a constructive and creative way. Geography is also able to point out where men thoughtlessly abuse nature or recklessly exploit resources in a short-sighted fashion. In the main, however, geography presents man as a sensible human being, adapting the environment to his needs and using the opportunities that nature provides wisely.

Geography, therefore, tends to renew our faith in humanity because it does not over-emphasize the ridiculous ways in which men react to each other's actions. When men react with men they seem to fight or compete senselessly. In science there are reasonable laws and in geography we see men behaving reasonably when nature is the problem.

Because men react to nature in such a multitude of different ways all over the globe and because geography shows that it is a great advantage in the world that there is variety, so geography develops individual excellence rather than social conformity. Social conformity is, of course, very different from social sympathy, which is the ultimate aim of geographers.

Geography does not lend itself any more than any other subject in the curriculum to socialized procedures in the classroom, to the understanding of parliamentary or committee activity, or to project methods. Geography more obviously preaches that it is very necessary to develop individuals in school who can think for themselves differently and independently; that is to say, individuals who will base their judgements on a careful assessment of the data and a diligent association of facts into conclusions arrived at by themselves.

Geography is in no sense a memoritor subject or a gazeteer compendium of information. It is not taught very successfully from any one text book and is certainly not adapted to a lecture method or a deductive procedure. Geography in school is above all an experimental, inductive inquiry into the influences that places have on people and/or the influence of people on places by an intensive study of detailed small samples of the great regions of the world. There are very few exact laws or principles in geography and it is certainly not a predictive science. The only firm and fundamental rule that we can state is that in every social, political or economic problem in the world there is always a geographic explanation as well as a historic or economic or political explanation. In all human affairs the influence of place conditions is always important. The way in which human beings adjust or react to those place conditions forms a very intricate and absorbing study. Geography is thus one of the great liberal arts.

A CENTRAL CORE SUBJECT

From an analysis of modern education and modern geography it is reasonable to conclude that the aims, purposes, objectives and

methods of geography fit more closely than any other subject into the central core, purpose and methods of modern education. Moreover, geography must be taught in each grade thruout the school system as a progressive, developing sequence of increasingly difficult concepts, ideas and generalizations. Since it is not an accumulation of packets of information about various continents, geography cannot be relegated for study to a few isolated grades. It has to be taught, like mathematics, or English or science, and, of course, as history should be taught, as a sequence of increasingly difficult ideas.

Lag in Recognition of Geography as Core Subject

Many may wonder why the theme which has been developed here has not been universally accepted for years as obvious. There are probably four main reasons why geography has not been more widely recognized as the core subject. The first is that geographers have not emphasized sufficiently the purpose for which geography is taught in school. They have not stressed that it is a subject primarily concerned with relational thinking rather than with factual cram. A second important reason relates to the methods by which geography has been taught. Lecture methods, slavish adherence to one text, verbalism and erroneous and impossible deductive thinking have been used with a subject and an educational system entirely unsuited to such obsolete techniques. The advent of the vivid travel story, of filmstrip and film, of accurate detailed maps on large scales and the emphasis on field and laboratory study, have made it possible for geography to fit in extremely well with the way in which modern education must be undertaken.

A third and very dangerous tendency in geography has been the over-emphasis of what might be called the systematic abstract kind of geography which tends to disintegrate the subject too soon into physical, human, political, economic, historical, and cartographical geography. These divisions of geography lead in school to a dangerous, abstract, over-generalized verbalism. It removes geography from a detailed study of small samples where man's everyday adjustment to conditions can be studied in a way understandable to children. Systematic geography by being too generalized too soon disintegrates the subject at the school level.

For school purposes regional geography, in which regions are studied as a whole in their complete inter-relational synthesis, is important. It has to be remembered, however, that no children can

understand large regions or the complete synthesis to begin with. The fact that each region of the world has a certain personality and distinctive differentiating characteristics is so much more realistic, so much more down-to-earth, than an abstract, generalized classification of the world. Children in school need the close contact with the reality of the ordinary life of ordinary people in specified and exactly described areas. They cannot think deductively very easily, nor do they understand broad generalizations without the adequate detailed evidence which supports them.

DISTINCTION BETWEEN GEOGRAPHY AND HISTORY

Fourth and finally, irreparable harm has been done to education by those who try to confuse the geographic with the historic or the scientific point of view in school. It has helped neither history nor science and certainly not geography. The fact that all knowledge is whole and very closely interrelated does not mean that several different ways of looking at total knowledge should be muddled together.

Isolated items of information, or detached facts are quite neutral and do not belong to any subject in the curriculum as such. They belong to all subjects. There are no sets of facts which are peculiar to any one subject alone. It is only when facts are related in particular and expert ways for special purposes that they become subjects. Subjects, as we have mentioned already, are particular ways of looking at total knowledge. They are themes or lines of interest. They are, in fact, the only way to make knowledge continuously interesting and meaningful.

In the study of any social or political problem the influence of human actions and thoughts in the past are quite different and distinct from the influence of economic conditions in the present, or the influence of government policies and religious taboos. Each one of these influences makes itself felt in distinct and separate ways and with different emphasis at different times and places. Similarly, the influence of place conditions, like mountains or drought, are quite distinct in their emphasis and incidence from the influence of human beings or of free trade policies on present day society. The influence exerted on Canadian life by the Laurentian Shield is certainly different from the influence exercised by such persons as MacKenzie King or John Diefenbaker, and the two types of influences must not be confused.

A history lesson purporting to deal with the exploration of

Canadian Prairies would tend to deal with the great men and the sequence of events that led to the establishment of settlement in a particular chronological order across the prairies. The teacher would very likely use maps, discuss the importance of rivers, and indicate the significance of the flat grassy plain. It would seem, of course, as if the teacher were using geographical facts, but in truth when a history teacher uses a fact like flat prairies or river direction she is simply using a neutral fact, not a geographical fact. The facts are in every sense historical because they are being used to explain an historical sequence of events. Moreover, the ultimate aim of the lesson is to show how a sequence of events developed and how that succession of events affects us now. The particular events are the effects of human action, of human beings one on the other, and are the historian's expert way of relating this information toward a particular historical purpose.

A geographer might equally well be teaching about the prairies and would use some of the chronological facts from the past about explorers. The purpose, however, in using these chronological facts —notice the word 'historical' is not used because the facts are simply neutral chronological items of information—is to show how places have affected the past and present distribution of human activity. The exact sequence of events in the past is of no particular importance to the geographer. Instead, the particular influence of flat prairie, or river direction, on present settlement and past settlement is of great significance. The lesson ends with emphasis on place conditions. The point of view and the purpose of the geographer are, therefore, quite different from those of the historian, and it is wrong to confuse those purposes or points of view, even though the historian and the geographer seem to be using in part similar sets of facts to explain the present situation on the prairies.

It is because people have allowed themselves to be confused into assuming that sets of facts or parcels of knowledge constitute subjects that we have come into this confused state of education in our school system. Rather than develop clarity and precision of thought thru specific points of view we have tended to allow memorized accumulation of facts to substitute for the real process of learning, which is the thoughtful association of facts into a set of ideas or an enlightened attitude.

SUMMARY

Since geography deals directly with the effect of place conditions on modern world problems it is an essential study for every citizen. Since it is a thought-provoking scientific investigation requiring the association of facts into ideas, principles and conclusions, it is an excellent educational device for developing the mind. Since it develops national and international understanding and goodwill as well as socially desirable attitudes, it is a splendid citizenship subject. Finally, since geography is very useful in solving practical problems of life and living, it has vocational as well as leisure time value. It is, in fact, the obvious centre of any core curriculum.

SPATIAL DIMENSIONS OF HUMAN ACTIVITIES: SIGNIFICANCE FOR GEOGRAPHIC EDUCATION*

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At its annual meeting in 1953, the National Council for Geographic Education adopted a resolution which read in part, "In its concern with all the phenomena which give personality and meaning to place, geography has a function which parallels the chronological interests of history: each deals with a wide array of human affairs; primarily the one in space, primarily the other in time."[1]

Altho this statement parallels much of what has been said about the nature of geography during the past two decades, it is worthy of further consideration. What concepts and generalizations related to human affairs in space can a teacher of geography develop at the several grade levels? With which of the wide array of human affairs should she deal? What spatial units should she

*"The ideas set forth in this paper are not to be construed as a definition of the discipline of geography; nor should it be inferred that the study of geography is confined to the spatial dimensions of human activities. In the study of geography, all phenomena, human or physical, can be studied in terms of their spatial dimensions."

[1]"Report of the Thirty-ninth Meeting of the National Council of Geography Teachers," JOURNAL OF GEOGRAPHY, Vol. 53, No. 4 (April, 1954), p. 180.

select as places for study? These and other questions are raised by the resolution adopted by the National Council.

The purpose of this paper is to present three spatial dimensions of human activities, and to point out some of the implications which these spatial dimensions might have for the sequential development of geographic understandings in our elementary and secondary schools. It is hoped that the three spatial dimensions presented can be used by the classroom teacher as a guide for evaluating her teaching of geography. The ideas or notions discussed, it will soon be recognized, are not original with the author. Indeed, the effective student or teacher of geography has always included the items to be presented in his research or instructional activities. The paper simply suggests that additional emphasis be given to the spatial dimensions of human activities for places studied, be they the learner's neighborhood or local community, state, region of states, nation, groups of nations, or the world as a whole.

The Significant Basic Human Activities

The basic human activities that represent the efforts of men to satisfy their needs and wants, and to solve problems arising from living in a particular natural and social setting include:

1. Producing, distributing, and consuming food, clothing, shelter and other goods and services.
2. Producing and creating tools and techniques.
3. Protecting and conserving life, health, resources, and property.
4. Transporting goods and people.
5. Communicating ideas and feelings.
6. Providing education.
7. Providing recreation.
8. Organizing and governing.
9. Expressing aesthetic and spiritual impulses.

It will be observed that several of these activities are already the foci of interest within the discipline of geography: e.g., agricultural geography; geography of manufacturing; marketing geography; transportation geography; and political geography. Only occasionally, however, is serious work being carried on, or are courses being taught, in the geography of communication, education, recreation, religion, or art. In other words, more attention is com-

monly paid by geographers to the spatial dimensions of economic and political activities than of the social or spiritual affairs of man. Insofar as this is true, the curriculum in geography does not deal with all of the human phenomena which have spatial distribution, but only with some of them.

SPATIAL DIMENSIONS TO BE ANALYZED

Three major considerations are commonly included in the study of human activities in space: areal extent, areal association, and spatial interaction.

The geographic study of any of the wide array of human activities in space begins with the statement of their exact, or mathematical, location. This spatial consideration has had a long and venerable history. In fact, the first geographical problem dealt with establishing the longitude and latitude of the habitable world, and as a recent writer has pointed out, the peak of geography's relative importance as a discipline among sciences came in the period of great explorations, extending from the fifteenth century into the nineteenth when the discipline furnished compilations of known facts of the shape, size, and extent of the earth's surface from which explorers worked. The facts which were brought out by subsequent discoveries were recorded and systematized by geographers in word and map. It was during this period that the shape of the globe was firmly established, the grid system of latitude and longitude developed, and projections invented for the portrayal of the earth as a whole.[2]

Contrary to the opinion of some scholars in other disciplines, as well as to that of the average layman, the task of "locating" places, things, or events exactly where they are was not completed with the age of discovery. There are still many places for which no datum points exists, and networks of these points are being established even today. In addition, the many maps compiled by geographers during and since World War II, from field surveys and aerial photographs, are further evidence that the task of mapmaking has not yet been completed.

A study of the areal extent of any basic human activity within a given place involves observations of its size and shape, its orientation, and areas of relative highs and lows, or agglomerations and

[2] Edward A. Ackerman, *Geography as a Fundamental Research Discipline*, Research Paper No. 53, Department of Geography, The University of Chicago (June, 1958), p. 3.

scatter. Children at all grade levels should be taught to observe and describe these spatial characteristics. In the primary grades, for example, maps of one's neighborhood or local community, drawn to scale and oriented correctly on the classroom floor, can portray the location of each pupil's home as accurately as possible. Children can be led to describe the extent of the area served by their schoolroom, noting its size and shape, its orientation, and areas of high and low densities in the spatial arrangement brought out by the location of dwelling units occupied by individual pupils. In later grades, map after map can be drawn by the pupils, purchased from commercial map-making firms, or clipped from magazines and daily papers. Each classroom, in fact, should contain a veritable collection of maps showing the areal extent of many, if not every, type of phenomena for places studied at a given grade level.

Here it might be noted that the resolution of the National Council draws our attention to a point which is often missed by those who design programs of study in geographic education, especially by those who think they are teaching geography, when they are not, in so-called intergrated programs of study. Geography does not consist of merely cataloguing the contents of place; rather it is concerned with the analyses of these things in space. A mere listing of the physical or cultural characteristics of any area, however defined, does not constitute the goal of geographic education, altho in too many instances the discipline of geography is conceived to be just such an arbitrary listing of natural and cultural phenomena. This conception of geography often results from exposing students to regional data presented as a background to one or another contemporary problem. They may take note of such information, but they do not become involved with its spatial analysis.

Having established the distribution of a wide array of human affairs, instruction in geography next calls for developing the ability of students to "explain" these spatial patterns. At the research level, or in university courses, this explanation often requires the application of sophisticated statistical techniques which aid in the discovery of the areal association of two or more phenomena. At this point in his study of geography, the learner becomes concerned with explaining the areal extent of a selected phenomena in terms of the distribution of one or more additional

phenomena, not in the sense of cause-and-effect, but in terms of independent and dependent variables. For example, one writer has recently demonstrated the areal association in the United States of high annual per capita income with urban population and manufacturing. He showed that areas of high per capita income coincided with areas of manufacturing and urbanism, and that low per capita income areas were associated with areas having little manufacturing and a small urban population. His findings contribute significantly to a better understanding of the spatial qualities of human affairs, and provide a generalization which might have application to other urbanized and industralized areas.[3]

This type of analysis, fortunately, can be carried out at any grade level. For example, primary grade children are able to formulate, conceive and understand the generalization that areas of many dwelling units in their neighborhood are associated with blocks that have been subdivided into many small lots. In one 12th grade Social Problems class, students recently examined the distribution of traffic deaths in the state of Iowa in terms of a number of independent variables, such as total population; proportion of the population aged 65 and over: proportion of the population classified as urban; and per captia liquor sales. The hypotheses tested were of the form, "Where X is found, there high numbers of traffic deaths are found; and where X does not occur, there the number of traffic deaths are low." The students found their work interesting, meaningful, and compelling. The hypotheses were tested visually thru the compilation of maps. The generalizations formed could have been applied to other areas had there been enough time available.[4]

When geography is taught so that the learner is led to derive generalizations concerning the areal association of two or more distributions, it is making use of the scientific method and foundations are being laid for later work in the field. As each year goes by, students add to their understanding of a wide array of human activities in space, with generalizations developed during a previous grade modified, changed, restated in light of additional information gained or new areas studied.

[3] Harold McCarty, "Significant Developments in the United States Since 1945," *The United States in World Today*, edited by Clyde F. Kohn, Rand McNally and Company, 1957, pp. 18-27.

[4] Otto Jakubek, "The Geographical Study of a Social Problem," publication forthcoming.

The third spatial dimension included in the study of geography is that of spatial interaction. This differs from the study of areal associations in a very significant way: the former involves a study of the movement of phenomena from one unit area to another; the latter with the association of phenomena within a single unit of area.

Work in the analysis of spatial interactions is proceeding rapidly at the research level, and commonly involves the analysis of kinetic, rather than static, patterns. Such studies have not as yet been widely introduced into the elementary and secondary school courses in geography, but this, too, can easily be accomplished. For example, in the primary grades, children can readily study the movement of fathers to work; the flow of food materials from farm to processing plants to the grocery shelves. In later grades, pupils can map and analyze the flow of raw materials from their source to centers of manufacturing, and ultimately to consuming areas. In all such examples, the analysis involves a study of the areas of production, areas of consumption, and the means of transporting people or goods from the one to the other.

Out of the study of spatial interactions has come the concepts of the nodal region, the hierarchy of urban places, gateway cities and many others, just as the notion of homogeneous regions has grown out of the study of areal associations. Recently, a professional paper demonstrated the geographer's interest in the areal organization of firms within which decisions on spatial interaction are made.[5]

Conclusions

Any discussion of the three spatial dimensions of human affairs—areal extent, areal association, and spatial interaction—should not omit reference to the creation of tools and techniques which are bringing about changes in these spatial dimensions. Techniques are being developed which either shorten the effective distance of travel and transportation, or permit intensification of the use of space, as witness the increasing densities of population in our standard metropolitan areas. With every major change that the world experiences, an alteration occurs in the spatial dimensions of human affairs.

If students are taught from the primary grades thru the high

[5] Robert B. McNee, "Functional Geography of the Firm, with an Illustrative Case Study from the Petroleum Industry," *Economic Geography*, Vol. 34, No. 4 (October, 1958), pp. 321-337.

school how to think effectively as regards human affairs in space, they will be working well within the discipline of geography and will, as a result, be better prepared to cope with the world in which they are living. They will have achieved a better understanding of the spatial aspects of the wide array of human affairs which give personality and meaning to place.

PRINCE RUPERT—AN ERROR IN LOCATION

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EARLY PACIFIC OUTLETS

"Regarding our city, we have hopes it will steadily grow. Our population is now around 11,000 in the city and 15,000 in the district." So states a leading organization in Prince Rupert. This hope has been cherished since 1871 when a British government reconnaissance survey was made across the Canadian Rockies to determine the practicability of building a railroad to connect eastern Canada with the Pacific Coast. Proponents of the idea felt such a line would have the advantage of providing a shorter span from eastern North America to the Orient than would a crossing at lower latitudes. Great Britain looked upon this potential route as a link which could contribute significantly to Empire consolidation.

Strangely enough, those who first selected the site for the port of Prince Rupert, located along the spectacular "Inside Passage" between Vancouver, Canada, and Skagway, Alaska, seemed to have focussed their attention exclusively upon the establishment of a northerly port on the coast of western Canada. They did not, apparently, recognize the inadequacy of the limited area of the site and its topography nor certain shortcomings in relation to its hinterland. There can be no doubt that the founders operated in good faith and in the light of all circumstances at the time, probably are not to be severely criticized for what happened subsequently. Even so, one cannot escape observing that it would have been better for all concerned had the founders showed better judgment in matters of an economic geographic nature.

Initial railway surveys were made along three potential routes across the Rockies connecting the interior with the coast: one was

to terminate at Burrard Inlet where Vancouver is now located, a second to reach Bute Inlet, some 360 miles northwest of Vancouver, and a third ending at Dean Channel about 290 miles northwest of Vancouver. A fourth route given incidental consideration at first, but actually adopted later, followed the Skeena River Valley to Port Essington, 20 miles south of the present site of Prince Rupert.

The first of these routes, the one to Burrard Inlet was made effective by the construction of a railroad by private interests at a cost of $80,000 to $200,000 per mile. It was begun in 1880. The investors organized a company to operate under the name, Canadian Pacific Railroad, and in 1881 were granted a charter by the Canadian government. In the face of numerous engineering difficulties work continued and in 1887 was crowned with success, when the first train entered Vancouver. The completion of the line, however, was not accomplished without a government subsidy. But the heavy price seemed worthwhile for it freed the Canadians from dependence upon the United States for transcontinental transportation.

Fig. 1. Sketch map showing orientation of Prince Rupert: 1) outer limit of Prince Rupert hinterland and 2) limit of Vancouver's hinterland based on the Prince Rupert-Edmonton radius. This boundary extends well to the east of the Prince Rupert line. Note: The two railways follow the same route west of Kamloops.

Altho the Canadian Pacific rendered excellent service, investors in the future of Canada still cast an eye upon the possibility of a terminal farther north than Vancouver where the distance between Canada and the Orient would be shorter. Ultimately work was begun on a line to reach the Pacific Coast at Tuck's Inlet via Ft. George and the Skeena River Valley. "Tuck's Inlet," roughly 500 miles northwest of Vancouver, did not appeal as an appropriate name for a terminal city of a great transcontinental railway. A prize was offered in 1905 for a new name. Prince Rupert, in memory of one who was influential in the early uncovering of the value of this region, was suggested and accepted in 1906. In the meantime, construction had been started (1905) on another line, the Grand Trunk Pacific Railway. In 1914 it carried the first thru train from Winnipeg to Prince Rupert. But, like the building of the Canadian Pacific, this railway also met with financial trouble. In 1919 it went into bankruptcy and was taken over by the Dominion Government.

All of these railroad building ventures in western Canada met with monetary troubles sooner or later because of the high cost of construction over difficult mountain terrain thru territory not yet settled with enough people to provide significant amounts of freight. In 1915 the Canadian Northern, was built to Vancouver. The line was taken over by the Canadian government in 1917, and in 1923 these western railroads were combined with eastern lines built by the government, and together named the Canadian National Railways with termini at both Prince Rupert and Vancouver.

A Trans-Continental Terminus

When Prince Rupert became a trans-continental railroad terminus, people at the time hailed it as "a city of undoubted future note." They envisaged as a distinct advantage the distance of only 7000 miles from Montreal to Yokohama via their city, in contrast with 7161 miles via Vancouver. The gradient of their line across the Rockies, except for a short stretch of 20 miles, was less than that of the Canadian Pacific to Vancouver. Enthusiasts for Prince Rupert also saw the potentiality of a considerable share in the wheat traffic from western Canada to eastern United States and western Europe via the Panama Canal. Furthermore, they expected to play the rôle of prime wheat exporter to the Orient.

Aware of the fact that freight is the foundation of profit for a railroad, and that it takes people to generate freight, the original

Grand Trunk Pacific made an early effort to settle the hinterland of Prince Rupert with farmers largely from Europe. But the results were not good because the terrain between Prince Rupert and Prince George was not the kind that the first imported settlers knew how to handle. In the pre-World War II period some Dutch farmers were brought in by the Canadian National Railways, successor to the Grand Trunk, an addition which proved somewhat more rewarding.

Later, that is during World War II, Prince Rupert served as a troop operating center and for the movement of troops and material. But this business, of course, was only temporary. Subsequently, encouragement of the timber industry in the environs of Prince Rupert, establishment of a cellulose plant, some commercial fishing, and limited agriculture, plus the large aluminum plant at Kitimat about 130 miles away—all contributed to the local economy. A growing tourist traffic also helped. But these various activities have not been enough to insure the 15,000 residents a future of the order which was originally contemplated.

Evaluation of Location

Theoretically, Prince Rupert was well located. But cities can not grow on theory. Had the city been established when western Canada and western United States were first occupied and thus gained the advantage of an early start, the probabilities are it would have fared much better. The center, however, has lacked certain fundamental elements even tho the harbor is reasonably good, the location on the Pacific coast inviting for some trade, and the railroad connection with the interior helpful.

Prince Rupert has been less readily accessible from the interior of North America than Vancouver or any other Pacific port as far south as Los Angeles. The eastern fringe of its economic hinterland reaches Edmonton. But nearly all of this area is also contained within Vancouver's hinterland. Not only that but if the Prince Rupert-Edmonton radius be used to strike a circle, with Vancouver as a center, it will enclose a vastly greater productive region. Stated another way, Vancouver with something over 530,000 persons in the "Greater City," serves most of the Prince Rupert hinterland more effectively than does Prince Rupert itself and incorporates a greater productive population. This means that Prince Pupert is confronted with almost unsurmountable competition.

Western Canadian commodities available for trade are primarily oil, gas, coal, wood products and grains. Their principal market is in eastern Canada and eastern United States. The secondary market is along the Pacific Coast of the United States. Some grain goes to the Orient and to Europe but the amounts are rather small. What is more, there is little cargo that ships can bring in to Prince Rupert for disposal either locally or in the hinterland. Inasmuch as ships ordinarily must carry cargo two ways to operate profitably, there is not much incentive for them to put into Prince Rupert.

In the absence of a basis for an exclusive commodity trade, for extensive manufacturing, or for a large tourist traffic, people have not been attracted to Prince Rupert in substantial numbers. Those who, slightly more than a half century ago, viewed with enthusiasm the rise of an important city on the site of Prince Rupert, erred unintentionally in their appraisal of the location.

UNFAVORABLE SITE

Not only is the location of Prince Rupert unsatisfactory but its site is unfavorable for urban expansion. A restricted terrace rises abruptly some 75 to 100 feet above the waterfront. The main business section of the city, essentially a one-street district, is squeezed between the outer edge of the terrace and the base of mountains which begin their rise virtually at the rear of the buildings along one side of "Main" street. Less rugged terrain spreads out the northeastern end of the city where a limited expansion could be conveniently accomplished. The Canadian National Railways entering from the south finds its way to its waterfront terminus along a sea-level path barely wide enough for a track.

LOOKING FORWARD

If we look forward a half century to see whether another means of communication, namely aviation might materially advance Prince Rupert, there is little reason to be optimistic. Airplane operations depend upon cargo just as do surface means of transport. Inasmuch as the outlook for settlement is not good, either within Prince Rupert or its near hinterland, there is no reason to anticipate large quantities of such cargo. Nor is there good prospect for heavy passenger traffic.

Another obstacle to Prince Rupert's future development is the

keen aerial competition offered by dynamic Edmonton about 725 miles to the east. Edmonton is located on a broad plain in the heart of an area which produces abundant grains, timber, gas, oil, and coal. The city is easily accessible by air as well as by rail and motor vehicle from the east and south where the major markets are located. What is more, as the airplane becomes an increasingly vital carrier in both domestic and international trade, Edmontion's location east of the Rockies upon a vast plain will prove far more effective than that of Prince Rupert's. This rapidly growing city is located on an advantageous major Great Circle route connecting the Orient with central North America. Prince Rupert, is in no position to challenge the supremacy of Edmonton.

One of the great railroad systems in the United States many years ago adopted the slogan, "Look at The Map." This was good advice. But this admonition can fall short unless the person who looks at the map interprets its data. When Prince Rupert was established as a trade center by those who believed it would enjoy a splendid development, either map data were inadequate or the data which the maps revealed were incorrectly interpreted. Considerable sums of money have been ill-advisedly expended by Canada's taxpayers upon a project which has yielded disappointing returns. Certainly the present progressive population should not be held accountable for the failure of the city to have attained the goal set by its founders. This is not to imply that further progress is unlikely. For here, as in hundreds of other cities, towns, and villages, "hope springs eternal."

SIX DATES—SIX GEOGRAPHIES

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To modern America the name, Cape Canaveral, brings visions of guided missiles, earth satellites, and space travel. It is very possible that the first American to blast off for the moon will use the launching pads at Cape Canaveral, Florida. Why was this site chosen for the pioneer space venture? Part of the answer lies in the geography of the Cape.

Today, the Cape's geography is that of sea space and inter-

continental distance, of jet streams and atmospheric stability. However, the geography of the Cape has not always been related to those spatial and meteorological conditions. The geography of the Cape today is only the most recent of a series of geographies—a series of ways in which men, looking at the same natural conditions, have used them in different ways. Six of these geographies follow.

SIX GEOGRAPHIES

The year: 1490. A Neolithic man, later misnamed Indian by the Spaniards, stood gazing seaward watching a playful school of porpoise. The sun was warm on his bare back and felt good as he remembered the cold spells of the past winter. Behind the Indian lay a broad expanse of quiet water, a lagoon separated from the ocean by a narrow strip of sand. Westward beyond the lagoon was the higher ground on which his village stood. North and south beyond the sand dunes lay a growth of palmetto and scrub pine in which deer might occasionally be found. The place, later known as Cape Canaveral, Florida, was a sandspit jutting seaward from central Florida.

The year: 1492. Far to the south of where the Indian had stood, a man stepped ashore, claiming for his king the lands he had discovered. With his discovery the force of a new culture, that of Western Europe of the late Renaissance, was focused on the new lands, including that on which the Indian had stood, Cape Canaveral.

The year: 1890. A white man and his family stood watching the playful porpoises. The warm sun quickly dried the legs of his children after their wading in the surf. Behind the family group the quiet waters of Banana River were broken by the prow of a small steamer as it put into a wharf to pick up the crates of oranges piled there for shipment north to Jacksonville and the railroad to the Northeast.

The year: 1944.* A Navy Seaman, taking an off-duty swim, glanced up idly as a Catalina bomber settled gracefully onto the quiet waters of Banana River behind him. The plane taxied slowly to the landing slip, carefully keeping clear of the rotting piling of an old wharf. As he watched a school of porpoise, the sailor could see beyond them a faint speck of an anti-submarine blimp moving

**Note: Alan, commissioned in the Navy, was stationed temporarily at Banana River during this year and often talked of the old and new geography of the area.*

slowly toward the mooring mast farther to the south on the base.

The year: 1956. The beach is cleared as the Red Alert is sounded. All personnel of the Air Force base are safely behind concrete bunkers as a roaring gush of flames seems to push the guided missile on its course. Eager hands watch dials and record information, unmindful of the school of porpoise playing offshore and unmindful of the weather in their air-conditioned offices.

The year: 1958. Radio and television programs are interrupted to announce the placing in orbit of the first successful American satellite. For the many months since Sputnik I, the eyes of America have been turned toward Cape Canaveral. Upon the success of the technicians and scientists stationed there hung the prestige of our country. With this successful launching, we heard confident and authoritative comments on the practicability of space travel, and of Cape Canaveral as America's first space-port.

Thus, we have six dates and, with six dates, six geographies—with many other dates and geographies between. In spite of the different geographies, much has remained the same. The water, with its salty warmth, its fish, and its vast expanse stretching to the east, is the same. The narrow stretch of sand between the lagoon and the ocean may have occasionally been breached by storms, but probably has not changed significantly. The lagoon with its mangrove-bordered shores and shallow water has not changed materially. The mosquitoes, except locally where temporarily eliminated by DDT, still drone by the thousands. The weather with its occasional cool spells in winter and long showery summers is the same. The Cape itself, jutting seaward, would look about the same on a map drawn at any of the dates. The only real change was the change in the type of man who lived at Cape Canaveral and in the way each of these men looked at the Cape. Altho most natural conditions of the Cape had not been altered perceptibly, man, by placing a different emphasis on various elements of nature, has created the different geographies.

The First Major Change

The Indian's relationship to the natural world around him was, for the most part, immediate and simple. His culture permitted him little choice of what to do with the earth. The palmetto, palm, and live oak forests with their open glades offered deer as food. The sandy soil furnished sustenance for small patches of corn, beans, and squash. The waters of the lagoon served as a route to other

hunting grounds or held fish which he could occasionally spear. His needs were simple, and his relatively primitive culture made little impression on the Cape and its environs.

For some time after the discovery of America by Columbus, the way of living of the Indians of Cape Canaveral continued in its age-old pattern. Not until the Spaniards came and occupied the land, bringing their soldiers and guns, their black-robed priests with a new religion, and their government and slavery did the change come. Now the lands must produce more to feed the non-producers of the missions and forts. The fertility of the soils became important. Woods of the forest became individually known as they were manufactured into boards, planks, ships, and fences. The glades of the forest changed their use to suit the Spaniards' economy by feeding many cattle instead of a few deer. The lagoon still furnished a transportation route as for the Indians, but now it was a route which was at the extremity of a road leading back to Spain—a road carrying the looted treasures of the Aztecs and Incas. The Cape still looked seaward, but now to a sea across which was home. Under a new, a Spanish culture, the Cape's geography had changed materially, but only to a small degree had its appearance. To the Spaniards the principle value of Florida was not as a home but as a guard on the flank of the Plate Fleet route.

A New Orientation

In 1890 the lagoon behind Cape Canaveral was still a transportation route, but its terminus was now in the great cities of the North. Facing Banana River and its joining Indian River, groves of oranges and grapefruit filled thousands of crates. Busy river steamers moved from wharf to wharf, and when loaded almost to the gunwales headed toward Jacksonville and the railroad. To the grove owner, the waterways were the life-lines of this enterprise, without which the groves would be palmetto thickets like most of the land away from the river. Thus, a new geography was born, a geography consisting of man's orange groves which in turn were related to the waterways sufficient for small steamers, to the modifying effects of the water in preventing killing winter frosts, to warm sun for ripening, and to plentiful rainfall for filling the fruit with juice. The deer of the Indian was gone and the strategic significance of Cape Canaveral of the Spaniards was gone. The Cape and its environs had again become the home of man—but a different man—a man who raised food for other men far away.

Another factor of the geography of the Cape was different. Instead of being a northward projection of an empire of which the heart was in the tropics, the Cape was part of a peninsula which extended equatorward from a land regularly visited by long and cold winters. Seeing the significance of warmth and sunshine to a winterbound people, Henry Flagler built the Florida East Coast Railway to Key West. Man's use of the lagoon (the geography) changed almost overnight. Oranges were now shipped by rail. The small steam craft ceased to ply their busy trade. The wharves rotted from neglect. The lands westward of the river and near the railroad became as valuable or more valuable than those near the river.

With increased competition came the need for higher quality fruit. Higher quality could in part be induced by irrigation, and the irrigable quality of a piece of land was related to the quality and quantity of the ground water beneath it. A natural factor, subsurface water, which had been present thru the millenia of Indian culture, the hundreds of years of Spanish culture, and somewhat more than a century of American culture had now come into the awareness of man.

Military Use

During World War II the Cape itself came into geographic focus again. Jutting out to the sea as always, this sandy barrier beach was used to defend new treasure routes—the routes of the oil tankers from Texas to the eastern ports and to Europe. From the Banana River Naval Air Base, a few miles south of the Cape, sea planes and lighter-than-air craft flew thousands of missions to protect convoys of ships moving up the east coast. The wharves of the orange grove days had disappeared, except for rotting timbers beneath the surface. Banana River was now a landing space for seaplanes. Protected from ocean waves by the barrier beach at the base of the Cape, it was an ideal base. Unpicked because of a lack of manpower, oranges covered the ground beneath many groves. The geography of the Cape was now a military geography. Man had decided on using a different set of natural conditions and had decided to neglect many he had previously used.

Ten years after the war, in 1956, the oranges were again being picked, the river as always offered fish to the skilled fisherman, the beaches were crowded with bathers, except in the winter; but the Cape was still dominated by military geography. American man

had decided that he must build a guided missile which would fly at least 5,000 miles. To prove its success he must test it. To test the missile, he needed a firing range over which the American armed forces could have complete control; which would endanger the least shipping; and which for logistics purposes, should have a home base within the United States. Such a place was Cape Canaveral. A line on a world map drawn southeastward from Cape Canaveral between South America and Africa passes over territory in the hands of friendly nations or over open ocean.

Thus, in the mid-century military race between the East and the West, the position of and the space adjacent to Cape Canaveral were considered by man its most important natural factors. The river behind the Cape lost its importance; the fish had little significance; the palmetto was easily brushed aside by a bulldozer as new buildings went up. Position on the continent and direction of unoccupied water from it, both spatial factors, became the important natural elements in the geography of the Cape of 1956.

What is the geography of the Cape in the Space Age? Choice of Cape Canaveral for the launching site was made partly because of the already established missile program, but primarily because of instrumentation available on islands down range. But will the Cape really develop into America's first space-port? The answer lies in the importance man attaches to some hitherto unsuspected factors of the natural environment of Cape Canaveral. The rotational speed of the earth at the latitude of the Cape (approximately 28° 30′ N.) is nearly 900 miles an hour. This west to east thrust must furnish an important part of the speed needed to place a satellite in orbit.

Other factors may also be important. If the high speed jet streams 30,000 feet above the Cape endanger the launchings, it might be better to move to another site. If the angle between the rotational plane of the earth at that latitude and the orbit of the Moon or Mars should make calculation or completion of the space trajectory too difficult, then another latitude might better be used. If the atmosphere is too deep here in the subtropics, perhaps it would be wiser to move the space port to the Arctic where the atmosphere is not so deep, although the Air Force feels this factor not too important.

Upon knowledge of such factors as those given above will depend the future use of the resources of Cape Canaveral. As in

the past each new cultural element of our society may bring into focus a factor of the natural environment which had hitherto been unimportant or unused. Thus we find geography everchanging, depending not so much on the change in the face of the earth itself but depending primarily on the changes in the society which wishes to make use of the earth.

LANDSCAPE AND THE GEOGRAPHER

C. W. Booth
Eastern Washington College of Education

That geography is essentially an observation science is irrefutable. All one need do is inspect the articles published in the various geographical journals (whether they be statistical, descriptive, objective, empirical or objectionable) and the evidence will bear out the fact that geographers are "seers" of the environment in various stages of alteration by the multiple forces of nature and man. (One might admit at times that the geographer has some air of mysticism about him, but the word "seer" is not used here with that connotation in mind!)

The most important contribution of the geographer, however, is not merely that he "sees" as any person with normal eyesight, but rather that he observes with some valuable insight at his disposal—in short, he *perceives*, with some rather definite information as his key to the workings of the man-land relationships. The nature of this information is essentially similar with respect to geographers collectively, but will vary in detail with respect to his or her individual interests and research.

How does a geographer acquire this peculiar sense of perception of things geographical? As with any other skilled profession, perceiving is a matter of learning and experience, and it is his distinctive training that makes the geographers point of view, and to a degree his method of study, unique. Once in the laboratory of geography, that is, the landscape, the geographer puts his distinctive training to work in its singularly most important function, synthesis. What the geographer perceives is essentially the physical nvironment, the accouterments and adaptations of man, and

the relationships that result from interaction between the two. These basic relationships may be regarded as follows:[1]

1) The human—physical relationships
(Such as economic endeavors in response to favorable physical conditions. Specific agricultural activities to soil and climatic conditions; the adaptation of transport lines to easily accessible routes.)
2) The human—human relationships
(Such as relationships built on economic utility of resources and resulting commercial activities. Finance centers arising from large agglomeration of commercial activity; service industries and so on.)
3) The physical—physical relationships
(Observable relationships such as climate and vegetation to soils; modifications of topography by erosion and so on.)

A classification has been made here for the sake of clarity, not cataloguing, and the examples of course are not meant to be all encompassing but rather suggestive. With this order of relationships in mind, it becomes a far easier task for the geographer to go beyond description in his work and to answer specific questions as to the spatial arrangement of certain developments and why they have taken place in specific locations thru a process of interpretation.

During this process of interpretation the geographer finds himself dealing with many segments of subject matter fields and consequently his work, of a necessity, reflects the adjective so often referred to concerning geography as the "bridging" science.

The set of three types of relationships previously outlined seems to be a useful tool indeed, for they serve as initial steps to the interpretive process in the study of a regional environmental complex, or the "landscape" and provide the student with foundational guides in learning to "see" with some degree of perception.

Geographers often pride themselves on the wholeness of their view of a region or location, and yet some trends seem strongly inclined to divide and specialize until the nature of geography has been transcended to a chemists line of test tubes, each completely

[1] Parker, Edith Putnam, "Investigating the Value of Geographic Offerings," *The Teaching of Geography*, 32nd Year Book of the National Society for the Study of Education, Bloomington, Ill. 1933, and modified by J. Leonard Oliver, Shoreditch Training College, Shoreditch, England, 1956.

sterile and divorced from the other. This is not an argument against a geographers right to specialize in his interests in the field, rather it is meant as a plea to remain true to the function of synthesis, and avoid the consequent perils of isolationism. The prospective geography teacher should be especially interested in the arrangement of relations and their applicability to his classroom courses and field work, for assuredly, the most obvious application of this set of relations will come in teaching and actual field work—the understanding of which is singularly important in the process of the perception of the landscape. Not only should a student learn the techniques of the plane table, slope board, pacing and the finding of a shady spot on a hot day, but in addition the man-land relationships involved should be observed and noted as indicators to the teacher of the depth of investigation and understanding of the student. An example of an outcome of a field study following this line of thought may be some *principles* of land use and occupance that apply to the area in question, due to some specific observable and investigateable factors peculiar to the area. This style project allows the student to carry thru an entire process, from investigation, synthesis, interpretation, reporting and map presentation rather than the customary perfunctory report and accompanying map. Hudson's Fractional Code System[2], an exceptional guide to interpretation of area thru field study, is an outstanding example of the type of device so necessary in accumulating pertinent data for interpretation. With the aid of such systematic tools, the student of geography is aided considerably in his learning experience related to the landscape, the progenitor of modern geography.

[2] Hudson, G. Donald, "The Unit Area Method of Land Classification." *Annals of the Association of American Geographers*, June, 1936.

"Do It This Way" Series

Phelps, *Geography Via Television*, 1958. ($1.00). A 32-page booklet with 11 illustrations about methods and techniques for teaching by television.

Halverson, *Geography Via Pictures*, 1959. ($1.00). A booklet illustrating methods and techniques in the use of pictures, still and motion, in the teaching of geography and the social studies. (Available about April 15.)

BLOTTER EROSION:

A Forest and Soil Conservation Experiment for Junior High Geography Classes

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Our planet is loosing 40,000 acres of soil each day! This is an impressive statistic. In methods courses, professors of education continually stress that numerical facts, per se, should be relegated to a secondary place in favor of fostering concept-building. In dealing with younger children this is often true, but certain vital figures will often lead to the formulation of sound concepts. Take, for example, the 40,000 acre figure for daily soil loss. A junior high school student is immediately impressed. The ready reaction to the initial statement of this article is, "How, Why, or Where?" Interrogatory words such as these are the stimulus to thinking, and thought creates sound concepts.

Answering these challenging questions makes teaching the art that it is. Just how does the earth lose 40,000 soil acres each day? The answer is by erosion. But after explaining the term "erosion," teacher and student are faced with defining types of erosion. Generally speaking, all erosion results from the altering of soil cover. Better-than-average students will realize that forest and grass cover holds the soil in place against the onslaughts of unrestricted wind and the on rush of waters seeking their own level. Once the soil's "clothing" is removed, the fertile mantle beneath is exposed to the ravages of the elements. This exposure may be a violently destructive action or a languorous disposition. Whatever form the action may take, the resultant condition is one of irreplaceable loss. Students lacking in imagination, of lower-than-average ability, or with short attention-spans will have difficulty in visualizing this concept of soil destruction.

A simple demonstrative experiment, involving readily available materials and consuming little of the teacher's time, will vitalize a unit on forest or soil conservation. Such an experiment will dramatize the effects of erosion to the slow-learner, while stimulating the imaginative pupil. It would be desirable for a group of advanced students to perform the experiment themselves. Only suggestions, procedures, and guidance should come from the

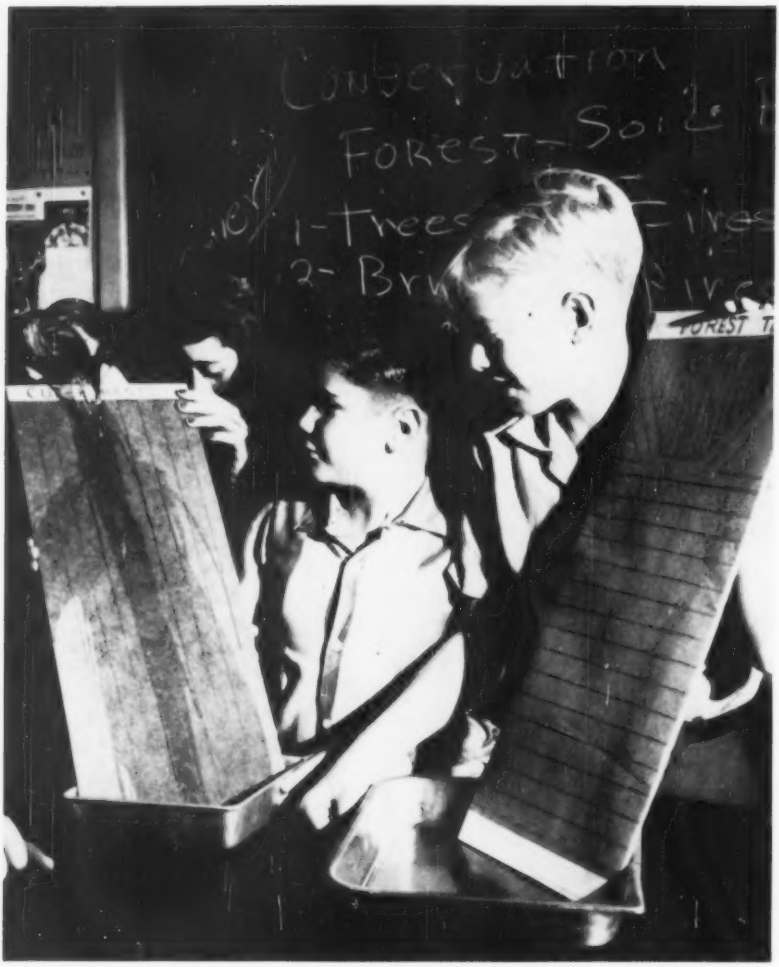

Fig. 1. Demonstrations help substantiate basic concepts and contribute to their retention.

teacher. A partial lesson plan suggested for this experiment is as follows:

Objective

To demonstrate how rain will erode bare soil while actually benefiting covered land.

MATERIALS

Two pieces of rectangular board (masonite works well) about $30'' \times 12''$; a large-size desk blotter; a chemist's graduate; two pans, and two measured containers of colored water.

PROCEDURE

Fasten the blotter over one of the boards, and wax the surface of the other.[1] Place the two boards at acute angles to catch pans at the base of each. Label the blotted board "Forest Cover," and the waxed board "Cut Forest."

DEMONSTRATION

Pour one container of water on the top end of the waxed board. Note how almost all the water runs into the catch pan; only surface tension retains small droplets. Emphasize that if the board were actually the bare soil that it represents, it would have been badly eroded. Repeat the procedure, pouring the second container of water on the blotter-covered board. The students will note how the blotter swells while absorbing water. If enough water is used, some will eventually reach the catch pan after saturating the "forest." The analogy will show that a forest or grass cover will absorb valuable water while holding soil in place.

Blotter erosion is an experiment that is well-suited for elementary and junior high school geography and general science classes studying units on conservation. It may be employed either as an initial or culminating activity or it may be integrated with lessons taught during Fire Prevention Week. With some elaboration and expansion of the basic concept, this experiment may well meet a need of high school classes in agriculture or earth science. Success would depend only on the inventive foresight of the instructor.

The experiment takes about one-half of an average school period to perform. Considering the importance of conservation-education and its rôle in making future generations aware of their responsibility to the soil, the time is indeed well-invested.

[1] The surface is waxed to protect the board and not to make the water run off faster.

Convention City for 1959

The 45th Annual Meeting of the National Council for Geographic Education will be held at the Sheraton-Cadillac Hotel, Detroit, Michigan, November 27 and 28, 1959. Program plans are now underway.

TRENDS IN GEOGRAPHIC CONTENT RE-EMPHASIZES DIFFICULTIES IN READING

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There are several trends appearing in the social studies field today. One of the trends in modern schools is in the direction of much greater emphasis on geographic content and skills. This trend is reflected in professional organizations' recommendations, current literature and concern of classroom teachers. If we are to put greater emphasis on geographic content, we cannot overlook the difficulties that children have in reading geography.

Learning to read effectively geographic content is a difficult, complicated, and long-enduring task. Wesley[1] points out that reading is important in all subjects but it is peculiarly so in geographic realities. Reading problems in geography are many and severe. It is possible, for instance, for a pupil to be a proficient reader in the basal reading program but poor in geography if he does not receive specific instruction in reading geography.

Several hurdles seem to present themselves in consideration of this problem. McCullough, Strang, and Traxler say:

> Geography textbooks in the intermediate grades have been notorious for the difficulties that they have customarily presented to the pupil, and some of the difficulties have been unnecessary. Among these are an unduly difficult general vocabulary, definitions of technical words almost as difficult to understand as the words themselves; a style of writing that packs many facts into a small space and gives no clues as to relative importance of ideas—hence gives no indication of which ideas are most worth remembering; and an approach that assumes the reader to be an ardent geographer, who needs no motivation and no guidance in journeying from his known world into the strange territories dealt with in the textbook. Authors of more recent materials on this subject have tried to overcome some of these drawbacks. Inherent in the very nature of geography, however, are a number of difficulties.[2]

Difficulties of Vocabulary

Every area of the curriculum has its special concepts and skills that must be developed and learned if children are to advance in each area. In social studies, there are a large number of unique words such as planet, immigration, hemisphere, mosaic, patrician,

[1] Edgar B. Wesley, *Teaching Social Studies in Elementary Schools*, D. C. Health and Company, Boston, 1946, p. 277.

[2] C. McCullough, R. Strang, and A. Traxler, *Problems in the Improvement of Reading*, McGraw-Hill Book Co., New York, 1946, p. 77.

and plebian. There are also the words with specialized meanings. Words which have, in the social studies, meanings other than the common ones, possibly familiar to the child. Such words as branch, cape, mouth, and range must be learned. Especially difficult are the abstract words. These are the words that have no clearly defined meaning. Words whose meanings are gradually learned thru meeting them in many situations. Words such as democracy, communication, civilization, toleration, and ancient are examples whose meanings can be learned only gradually. Students may be able to pronounce these unique, difficult or abstract words but to arrive unaided at their meaning would be extremely unlikely.

DIFFICULTIES OF CONCEPTS

In the social studies some concepts, and consequently the meanings of words, are very complex and difficult to learn. It is the concept that gives meaning to a vocabulary term. The development of concepts and vocabulary meanings progress hand in hand.

Geography concepts are important concepts and appear to be becoming increasingly important as the world becomes more highly interrelated. Altho the reading of geography is fraught with many problems, it is an important sort of reading. This highly specialized reading can best be taught thru reading geographical materials when the child is actually confronted with the problems that are inherent within those materials.

Many of the difficulties in the reading of geographical materials come from the fact that there is a large number of concepts to be learned in reading any one page. These concepts come in rapid succession and are often quite unrelated. Children should have many contacts with a word in order that it become a part of their sight and meaning vocabulary and in order that they may recognize it in various settings. Many words that are introduced in the materials of geography are used only once or twice. It is very difficult to make all of these concepts a part of the child's working equipment. What happens is that the student reads relatively slowly, remembering as many concepts as he can for short retention, and some few for various reasons are retained for a longer period of time.

No concept is elaborated upon sufficiently to permit a clear understanding of it. These difficulties of contraction of presentation make more than mere verbalism difficult, if not impossible.

Often, a relatively difficult concept is handled in a single sentence; sometimes, two or three concepts are found within a single sentence. Bond and Wagner report that a paragraph of 59 words, selected at random in an intermediate-grade geography book in wide use today, contained 12 concepts, or about one concept for every five words. Some of the concepts in that paragraph were so important that it would be easily possible and profitable to spend a week or more of study upon any one of them. Obviously, at best, only a sketchy or partial understanding could have been obtained by a very able reader thru the presentation.[3]

The concepts often are remote from the point of view of interest. Much of the content is about places, peoples, and conditions, remote in space to the student. The student with little sense of distance, cannot get a clear understanding of problems of transportation, reasons for location of industries or population centers and interrelationships among people.

The recognition by the teacher and the pupil of the problems inherent within a field will in and of itself aid materially. The student should approach such reading with an awareness that one of the important aims of studying the social studies is to build a useful vocabulary of terms frequently employed in the studies. He should approach that reading with a desire to find the meaning of the words and with a demand upon himself that he understand their use. The teacher's responsibility is to encourage and to show him how to go about learning new words.

The provision of reinforcement of incentives to dig out meanings, the clearing up of misconceptions, and development of methods of procedure are largely a matter of teacher guidance. The teacher should anticipate vocabulary difficulties, or possible misconceptions, and thru discussion clarify and expand word meanings.

Difficulties Due to Problems of Location and Distance

In as much as world distances are shrinking and as the peoples of the world are becoming more and more interrelated and interdependent, we should teach to expand the student's locality in order that he may be prepared to think more clearly about world happenings. Remoteness in distance and interest are closely related to

[3] G. Bond, and E. B. Wagner, *Teaching the Child to Read*, Macmillan Company, New York, 1955, p. 305.

difficulty of concept in lack of background to understand the reading. Many means of building background and teaching techniques should be used if student's background is to be built and his conception is to be at all accurate and impregnated with meaning.

DIFFICULTIES DUE TO PROBLEMS OF ORGANIZATION

A student can not visit all places and experience all things. It is thru the vicarious experience of reading that students learn of people and places. The task of arriving at an organized understanding of geographical facts and concepts thru reading is extremely difficult.

In order that the facts learned thru reading may be retained, organization is needed. Organization is particularly needed when the material that is being read is rich in factual content. WHEN THE FACTS ARE MANY AND WHEN THE ORGANIZATION OF THE WRITING IS DIFFICULT TO FOLLOW, THERE IS A REAL PROBLEM OF ORGANIZATION. THE MATERIALS OF GEOGRAPHY ARE SUCH MATERIALS. The students are confronted with several problems. The first is the difficulty of giving relative weight to the importance of the topics. Students are often unable to isolate concepts of major importance from the background material used to build up these major concepts. It becomes the teacher's duty to make careful assignments and thru leading the discussion about the material read, to focus attention upon the points of major importance.

A second difficulty is that students are confronted with alternative organizations. This problem is inherent in reading with the field of geography. If the reading is to be effective, some solution to the problem must be made. As the student goes thru the political organization, he may be able to piece together the industrial concepts. Whichever way the material is organized, the child will need help in seeing this two-fold import of geographic study.

The teacher should help the children sense, as he reads relationships among facts, that he should form habits of thinking with facts while he is reading them.

The teacher must be aware of and must make provision for meeting all of these difficulties of organization that are characteristic of reading geographical materials.

If facts relative to a given country or area are to have meaning and be remembered, many generalizations are essential. Another

problem is that generalizations about geographical materials are difficult to formulate. It is difficult for the most experienced reader to formulate generalizations based upon many facts. The subject matter of geography has many facts.

Couple these problems of organization and generalization with the problem of reference. The usual textbook in geography refers to like or related concepts which have been discussed in earlier sections. In studying transportation, the student is asked to recall the discussions of transportation in other areas of the country about which he has read previously. All is well and good if he recalls the discussions. If he does not, he may be referred to specific pages in order that they may be reread. Such reference to earlier concepts is important and should be made. Frequently, the student has completely forgotten the earlier concepts, or does not have an adequate understanding of them. For many children, the problem of reference is a source of confusion in reading geography.

Sometimes the students are asked to refer to a map as many as 100 pages distant from the reading matter that discusses the map. The better reader is able to remember the approximate location of the printed page where he is reading, so that after locating a distant map and studying it, he can find his place quickly again. Skill is required to read running material, refer to a basic study tool and then relocate the page of reading content and find the place in it once again. This ability is the result of much practice. Some students have to read the entire page again before they can locate where they were reading before they went on the 100 page journey thru the book. It is not uncommon for a page of geography to contain as many as eight map references that requires a student to refer to pages other than the one he is reading. For many students too many referrals tend to break up the continuity of reading and to detract from its interest.

It is helpful to teach the students early in their reading of geography that they remember the location on the page that they were reading when it was necessary to refer to the map. This eliminates the time consumed in skimming and less confusion in thoughts.

Summary

The teacher of social studies must be conscious of the difficulties involved in the reading of geographical content if the content is to take on meaning. Due to the style of writing, textbooks in geogra-

phy frequently put many hurdles in the way of the reader. There is, for instance, the relatively small space packed with numerous facts and ideas without enough organizational clues to exhibit plainly the relative importance of different facts and ideas. There is little or no indication as to which ones are most worth learning. The outcome is likely to be that the students stumble along learning indiscriminately some facts and ideas, or pick up no appreciable learning at all.

Too frequently authors of texts of geography introduce specialized words with inadequate or no attempts at defining them. Moreover they inject new ideas without providing a sufficient context of meanings to clarify them. Progress has been made toward overcoming some of these shortcomings in some recently published texts. However, a responsibility is placed on the teacher to check, evaluate content, and to anticipate difficulties.

Teachers must prepare students to accept a heavy burden of technical vocabulary specific to geography. The importance of acquiring a meaningful store of terms uniquely belonging to the content of geography can not be over-emphasized. Each of these words acquires meaning not in isolation, but only in terms of a well-rooted concept relevant to the content of geography. To become securely meaningful, each of these terms must be clearly understood in the place where it is used.

Geographical content is different in vocabulary, different in concept, different in organization and different in complexity of ideas. Students need specific instruction in reading geography if clear understandings are preferred or expected.

Professional Papers

# 8	Kohn (Ed.), *Geography in the Undergraduate College Curricula*, 1948	$ .25
#10	Whittemore (Ed.), *A List of Articles on Maps and Their Use in Geographic Education*, 1950	.25
#11	Eiselen, *Values and Problems in the Use of Color Transparencies*, 1951	.25
#12	Anderzhon (Ed.), *A Selected Bibliography on Geography Education for Curriculum Committees*, 1951	.75
#13	Barton (Ed.), *Geography and Conservation Education*, 1952	.25
#15	Warman (Ed.), *A Survey of the Research in Geographic Education*, 1952	.25
#16	Shaw, *Forces Contributing to Changes in Geographic Education*, 1958	.25
#17	Bacon, *Population Growth and Its Impact on Geographic Education*, 1958	.25
#18	Coleson, *The Elementary Social Studies: Sense and Nonsense in Integration*, 1958	.25
#19	Warman, *Changing Emphasis in Geographic Education*, 1958	.25

NATIONAL COUNCIL AT WORK PAGE

Plans are progressing for the Annual meeting to be held in the Sheraton-Cadillac Hotel, Detroit, Michigan, on Thanksgiving weekend. The theme for the meeting this year is "Our Educational Environment and Geography Teaching."

Many geographers in educational work feel that for many years geography teaching in the elementary schools and particularly in the secondary schools has been underprivileged and inadequate. We all believe that we teachers of geography have something to contribute in the education of American youth that can not be given by anyone else; that we have a responsibility for America's future which can not be neglected.

During the last generation we have failed to keep pace with the growing needs for geographic education. The fact that there has been little or no recognized demand for our services on the part of educational administrators does not alter the fact that the high schools of America are annually graduating larger and larger classes of geographical illiterates. The results are serious and embarrassing.

It has been quite customary for us to point with shocked indignation at these sorry results of American educators who know no geography and will not permit us to do a respectable job in that field. But are we not ignoring the fact that we too are American educators? May it not be that we must accept some of the responsibility for the unfortunate conditions? In any case, perhaps there is little value in assessing blame. It is more important that we correct mistakes. Whether or not we are responsible for the conditions as they exist, we cannot avoid responsibility for improving those conditions if that is possible.

It is with that premise in mind that the theme for our next meeting has been chosen. We hope that we can examine the current educational scene with some of our leading educators. Perhaps, if we can not modify the educational environment, we can learn how to adapt ourselves to the environment and thus do a more effective job of geography teaching in the American schools.

Program suggestions and papers relating to the theme will be welcomed by the president until the end of May.

* * *

It is not customary for the council to advertise for articles which have appeared in journals and periodicals other than our own but this is such an ad. We have a project committee called the "Committee on Promotion of Geography Through Non-Professional Publications." Its purpose is described as follows: "A periodic award is to be given for an article appearing in a popular medium which is most effective in informing the lay public about what geography really is or presenting reasons why geography should be more prominent in the American educational system."

All members of the Council and all readers of the Journal of Geography are urged to be on the alert for such articles and submit them for the consideration of the awards committee. Any entries may be sent to the President who will see that they are placed in the hands of the committee chairman.

Adelbert K. Botts, President

BOOK REVIEWS

Joseph E. Williams (Editor). **World Atlas.** Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1958. 132 pages with index and maps. $6.00.

The impressive cartographic workmanship in this atlas represents some of the collective thinking of an impressive list of geographers who are mentioned in the preface. The precise execution of each map catches the user's eye. All of the physical maps are a

merged-color shaded relief that gives the user a feeling of third dimension. As I observed junior high pupils use this atlas, my attention has been called to the psychological effect of this merged-relief technique on the user. This third dimensional effect invites the user to follow with the eye and often with a small pointer the up and down slopes of hills and mountains, as well as along rivers that flow across mountains and plains to the sea. As the eye of the user follows the change in landforms from place to place, he catches the precise location of city symbols. These symbols vary to indicate city population and are connected by a network of railroads and on some maps highways and water connections.

Elevations and depths of ocean are effectively shown on all physical maps. Significant peaks and depths are given in exact number of feet. The legend showing elevation carries both feet and meters and are shown vertically on each map page. The legends are consistent and at the same time include special information when required, so that it can be said to be tailored for the map.

The scales of the maps are consistent and when they do need to be varied, the representative fractions are in multiples that can be quickly calculated when students are making comparisons of distances and areas from map to map.

The special maps show precise data and give a feel of thoughtfully selected data, streamlined to show the display of arrangements and distributions of data they are designed to give without leaving the user with a feeling of a cluttered map.

On individual maps the selection of geographic data and useful information is included in inset maps on the same page or side by side, for example the useful seasonal maps showing rainfall on pages 85 and 93. This is a distinct asset when using the atlas in the classroom.

The table of contents is organized from World to Regions and is easy for students, at the secondary level, to use.

It would have greatly enhanced the use of this atlas had the approximately 20,000 entries in the index carried pronunciations, and the places been located according to latitude and longitude rather than the alphabet-number index.

MAMIE L. ANDERZHON

Junior High Cycle
William Beye School
Oak Park, Illinois

E. W. Briault and J. H. Hubbard. **An Introduction to Advanced Geography.** Longmans, Green and Company, Inc., New York, 1957. xi and 470 pages with illustrations, graphs, maps, and index. $5.50.

This book is the result of the work of a school inspector who specializes in geography and a teacher of geography in an academic high school.

The book is designed to be the culmination of seven years' work in the study of geography in an academic secondary school. In England, geography is taught for at least two hours a week as a separate discipline for seven consecutive years. Five of those years are devoted to regional studies of an intensive nature and two years to more systematic geography. The volume under review is the final synthesis providing a comprehensive world view of the value, purpose and use of geography as a citizenship subject.

In North America this book would be suitable for the secondary year of University study, provided that it can be assumed that previous detailed regional studies have been made. It must be added also that the book is intended for the kind of student who consistently gets "A" grades thruout his school career and in the University. In other words, it presupposes a very considerable knowledge and distinct enthusiasm for the subject of geography. It is, in fact, for those who are interested in geography for its

own sake as well as for those who can see its value in understanding political and social problems in the world.

The book is very well illustrated with pictures and diagrams and with detailed examples taken from the British Isles. It is a book written very much on the plan of many American books called "General World Geography" but the language is very much more concise and a great deal more is said in far fewer words than is characteristic of many North American books. It suffers a great deal less also from the over-generalization and the facile generality that too often mars our texts.

So far as its use in North America is concerned, its major failing is that its examples are almost wholly from the European continent. It has also to be borne in mind that it is a book on advanced geography and, therefore, presupposes a good deal of previous study.

It is a book that every teacher of geography in the high school should read and know. It is a text that could be well used in University courses of general geography or world geography.

NEVILLE V. SCARFE

University of British Columbia

Harold M. Mayer. **The Port of Chicago and the St. Lawrence Seaway.** University of Chicago, Department of Geography, Research Paper No. 49, Chicago, 1957. xvii and 283 pages, with maps, graphs, tables, and photographs. $5.00.

In this compact and well illustrated volume, Professor Mayer presents a complete history of the development of the Port of Chicago, and projects his analysis of this Great Lakes port into the future following the completion of the St. Lawrence Seaway. An early chapter of the volume discusses in detail the development of the Seaway, describing the physical obstacles to be overcome and the cost of the project. This is followed by a consideration of Great Lakes-Overseas trade and shipping services, and the future prospects for overseas trade. With this material forming a basis for the major part of the book, the next seven chapters deal specifically with the Port of Chicago and with such topics as the present harbors and inland waterways of the port, the traffic of the port, the Calumet Sag Project, the Lake Calumet development, the terminal facilities of the port, and the development of other harbors in the Chicago Metropolitan District. Particularly lucid is the description of the development, both present and potential, of the Calumet Lake District and the comparison between it and the downtown section of Chicago Harbor. In this discussion the author brings out many economic considerations which are applicable to competing ports thruout the world. In similar manner he considers the other Great Lakes ports of both Canada and the United States and shows to what extent each will profit by the opening of the St. Lawrence Seaway, but sounds a warning against the possible over-development of some ports which could not provide sufficient cargo to justify the cost of harbor installations. The final chapter summarizes the major points of the study and makes a plea for a unified metropolitan port agency which would have complete control of the future development of the Port of Chicago.

As a specific port study, this is a contribution to the geographic literature on Chicago, but it also makes a material contribution to the economic geography of ports.

EDWIN J. FOSCUE

Southern Methodist University
Dallas, Texas

Krutilla and Eckstein. **Multiple Purpose River Development: Studies in Applied Economic Analysis.** The Johns Hopkins Press, Homewood, Baltimore 18, Maryland, 1958. xiv and 301 pages with graphs, tables, and index. $4.50.

The long battle between public and private power men for the right to develop some of our rivers has been a prominent feature in the press for some years. The problems of multiple purpose river basin development cut across several disciplines, including geography. This study is exclusively economic in viewpoint; none of the political implications of power development is considered. An expressed purpose of the authors has been to prepare useful material for upper division or graduate students in conservation or applied economics curricula.

The authors have set for themselves two tasks: 1) analyzing the conditions required to achieve economic efficiency in water development, and 2) analyzing the differences in the pattern of income distribution which would result from the different resource policies. Other values in addition to economic efficiency are at stake but are given only passing attention.

The book considers the use of both private and public funds in large-scale, integrated river basin development where the greatest difficulties in achieving efficient development are encountered. An aspect of the problem not found in geographic literature is equity, when, as a result of such development, income is redistributed either from raising and spending government money or the dispensing of privileges. One of the difficulties in assessing the economic efficiency of a particular river basin development program has been the absence of a meaningful framework for economic analysis. Part I sketches this framework.

In Part II the authors apply the analysis outlined in Part I. They attempt to demonstrate which among several alternatives for basin development is more efficient, that is, will contribute most to national income and product. They can consider the income redistribution of alternative plans for three different systems, widely separated geographically: a) Hells Canyon, b) Alabama-Coosa River System, and c) Willamette River System.

Thoro analysis leads to two conclusions. First, it is difficult if not impossible, to generalize as to what constitutes the most efficient approach to the development of water resources, and, second, that the most efficient solution need not necessarily be the socially desirable one. The conclusions depend upon the specific conditions in the individual cases.

This book is not for the average reader, but for teachers of college courses in conservation this book is required reading.

ALFRED J. WRIGHT

The Ohio State University

Max L. Moorhead. **New Mexico's Royal Road: Trade and Travel on the Chihuahua Trail.** The University of Oklahoma Press, Norman, 1958. xi and 204 pages with maps, illustrations, bibliography, and index. $4.00.

In 1821 Missouri became the 24th American state and Mexico established a republic after more than three centuries of Spanish control. By sheer accident these two far-flung lands were linked that same year when Captain William Becknell and a group of followers wandered into Santa Fé. The trace they had followed from Missouri was later to become famous as the Santa Fé Trail. The then Mexican town of Santa Fé was the terminus of a *camino real* (royal road) that stretched 1600 miles from Mexico City in

the south. And the real significance of the Santa Fé Trail was its connection with this longest of all Mexican royal roads.

Despite its title, Moorhead's book is concerned with a good deal more than trade and travel on the Chihuahua Trail (the northern third of the *camino real*). An almost equal amount of attention is given to the Santa Fé Trail, and adjuncts to trade and travel along both routes are well developed. For those interested in cultural traits, Moorhead offers several excellent accounts. Outstanding are his discussions of the mule trains and the Conestoga wagon trains.

This first-rate historical account is not without its shortcomings. The poorly drawn maps are decidedly ineffective. Places and things along the *camino real* are discussed at length, but less than one third of that route is mapped. A carefully prepared map would have permitted a shortening of the text, especially in chapters I and V. In these the reader is taken on tedious, mile-by-mile journeys of the Chihuahua and other trails. One is literally overwhelmed with place names, of which few can be found on modern maps and fewer still possess any real significance.

This absence of adequate maps is a criticism that may be leveled at almost every historical text appearing today. Moorhead should have included a physical map, for it is difficult to visualize why this or that route was chosen by the pioneers. Some familiarity with the area's climate, botany, topography, and hydrography would be of great assistance. A group of modern photographs would help point up the rigors of travel over these arid routes.

New Mexico's Royal Road should be read by any student of the American southwest and certainly by anyone proporting to be a cultural or historical geographer. The one great lesson from Moorhead's study is: one must know what *has* happened to the landscape before he can understand what *is* happening to it and before he can attempt to predict what *might* happen to it.

Robert H. Fuson

Louisiana State University in New Orleans

Lucile Carlson. **Geography and World Politics.** Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1958. 534 pages, 79 maps. $8.75.

This text is laudable in its aims but unsatisfactory in its execution. Part 1 (133 pages), on principles of political geography, contains much useful and interesting material, tho some topics (population and resources, for example) are presented incompletely. In part 2 (383 pages), a world regional survey, the author claims to make an original contribution by "an arrangement of the regional material . . . based on the power blocs" of the world. Actually only two of the section headings refer to power blocs (The Communist Bloc; Western and Neutral Lands of Asia and the Pacific), the others being locational (Atlantic Basin States; the Mediterranean-African World). This scheme separates closely related countries of southeast Asia by more than 200 pages and contains such discrepancies as including Thailand among the East Asian offshore islands. Moreover, a framework alone cannot develop an understanding of the political geography of power blocs. That is a job for the text, and it is left largely undone. Part 2 discusses countries and regions (often superficially and incompletely), never power blocs as wholes. Only in chapter 8 of Part 1 is there a limited presentation of their political geography. This approach (it should be applied to other groupings—NATO, etc.—also, for today most countries belong to several such supranational units) is profitable, as this reviewer has found in her teaching. Fuller development of it and elimination of the artificial framework of Part 2 would improve the presentation of both the supranational and the national aspects of political geography.

Anastasia Van Burkalow

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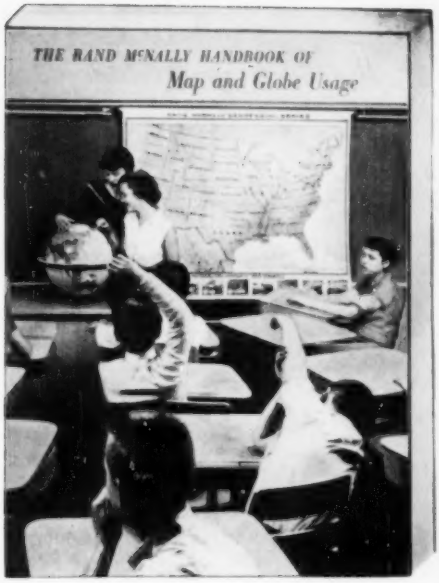

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Lucile Carlson. **Geography and World Politics.** Prentice-Hall, Inc., Englewood Cliffs, New Jersey. 1958. 534 pages with tables of contents, bibliography, and index. $8.75.

Pierre Gourou. **The Tropical World.** Longmans, Green & Co., Inc., 119 West 40th Street, New York 18, New York. 1958. xii and 159 pages with index, table of contents, and illustrations. $4.00.

Allen Andrews. **Proud Fortress.** E. P. Dutton & Co., 300 Fourth Avenue, New York 10, New York. 1959. 220 pages with index, table of contents, and illustrations. $3.75.

Bruce F. Johnston. **The Staple Food Economies of Western Tropical Africa.** Stanford University Press, Stanford, California. 1958. xi and 305 pages with indexes, appendix, table of contents, and illustrations. $6.00.

Clarence E. Koeppe and George C. De Long. **Weather and Climate.** McGraw-Hill Book Company, 330 West 42nd Street, New York 36, New York. 1958. viii and 341 pages with index, appendix, table of contents, and illustrations. $7.50.

James A. Taylor and R. A. Yates. **British Weather in Maps.** St. Martin's Press, Inc., 103 Park Avenue, New York 17, New York. 1959. xiv and 256 pages with appendices, bibliography, index, table of contents, and illustrations. $5.00.

Norman Lansdell. **The Atom and the Energy Revolution.** Philosophical Library, Inc., 15 East 40th Street, New York 16, New York. 1958. 200 pages with glossary, table of contents, and illustrations. $6.00.

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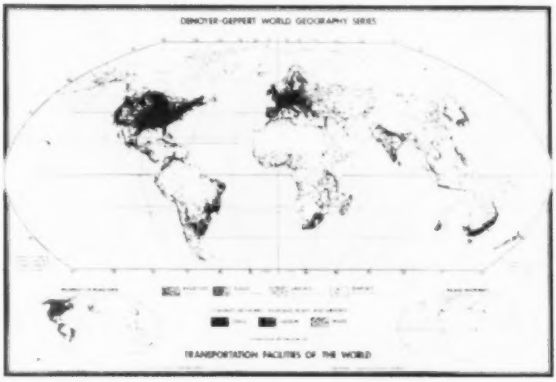

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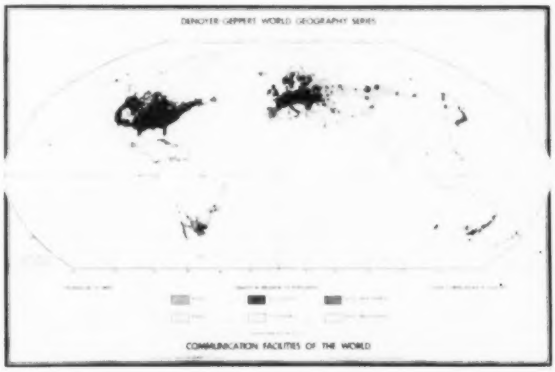

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